

RULE 1406

Control Of Dioxin Emissions From Medical Waste Incinerators

(a) Purpose

The purpose of this rule is to protect public health by reducing dioxin emissions from medical waste incinerators in the South Coast Air Basin.

(b) Applicability

The provisions of this rule apply to all persons owning or operating new or existing incinerators of waste from medical facilities.

(c) Definitions

- (1) DIOXIN is dibenzo-p-dioxins and dibenzofurans chlorinated in the 2,3,7 and 8 positions, containing 4,5,6 or 7 chlorine atoms and expressed as 2,3,7,8 tetrachlorinated dibenzo-para-dioxin equivalents.
- (2) MEDICAL FACILITIES are any medical and dental offices, clinics and hospitals, skilled nursing facilities, research facilities, research laboratories including classroom laboratories, clinical laboratories, all unlicensed and licensed medical facilities, surgery centers, diagnostic laboratories and other providers of health care.
- (3) MEDICAL WASTE INCINERATOR is a furnace or other closed fire chamber used to burn wastes generated at medical facilities.
- (4) PERSON is any firm, business establishment, association, partnership, corporation, or individual, whether acting as principal, agent, employee or other capacity, including any governmental entity or charitable organization.
- (5) RESIDENCE TIME is the amount of time the combustion gases are exposed to mixing, temperature, and excess air for final combustion.
- (6) UNCONTROLLED EMISSIONS are the dioxin emissions measured from the incinerator at a location downstream of the last combustion chamber, but prior to the air pollution control equipment.

- (7) WASTE is all discarded putrescible and nonputrescible solid, semisolid, and liquid materials including, but not limited to, garbage, trash, refuse, paper, rubbish, food, ashes, plastics, industrial wastes, demolition and construction wastes, equipment, instruments, utensils, appliances, manure, human or animal solid and semisolid wastes.

(d) Requirements

- (1) Effective April 5, 1992, a person shall not operate a medical waste incinerator unless:
- (A) The dioxin emissions have been reduced by 99 percent or more of the uncontrolled emissions; or
 - (B) The dioxin emissions have been reduced to less than 10 nanograms of dioxin per kilogram of waste burned.
- (2) Effective April 5, 1992, a person shall not operate a medical waste incinerator unless the furnace and control equipment are installed and used in a manner which has been demonstrated to and approved by the Executive Officer's designee to meet the following requirements:
- (A) The flue gas temperature at the outlet of the control equipment shall not exceed 300 degrees Fahrenheit, unless it has been demonstrated to and approved in writing by the District and the Air Resources Board that a greater collection efficiency will be achieved at a higher outlet temperature.
 - (B) The primary combustion chamber shall be maintained at no less than 1400 degrees Fahrenheit, and the secondary chamber shall be maintained at no less than 1800 degrees (plus or minus 200 degrees) Fahrenheit.
 - (C) The furnace design shall provide a residence time for combustion gas of at least one second at a temperature of not less than 1800 degrees (plus or minus 200 degrees) Fahrenheit. The residence time is measured from the location where the required temperature of 1800 degrees Fahrenheit has been fully developed and is calculated with consideration of design-specific furnace parameters including chamber volume, volumetric air flow rate, and excess air rate. Residence time shall be calculated using the following equation:

$$\text{Residence Time} = \frac{V}{Q_c}$$

Where:

V is the volume, expressed in cubic feet, from the point in the incinerator where the maximum temperature has been reached until the point where the temperature has dropped to 1600 degrees Fahrenheit.

Q_c is the combustion gas flow through V, expressed in actual cubic feet per second, as determined with ARB Test Method 2 specified in Title 17, California Code of Regulations, Section 94102. The average volumetric flow rate calculation shall be corrected using the temperature of not less than 1600 degrees Fahrenheit.

- (3) All waste material collected from the incinerator after combustion, including, by way of illustration and not limitation, bottom ash, fly ash and scrubber residuals, must be handled and stored in a manner that prevents entrainment into ambient air.
- (4) An application for a Permit to Construct shall be submitted to the Executive Officer's designee to modify existing equipment or construct control equipment necessary to meet the requirements of paragraph (d)(1) or (d)(2), by July 3, 1991.
- (5) Calibration of incinerator and air pollution control monitoring equipment shall be conducted in accordance with the equipment manufacturer's specifications.

(e) Emissions Control Plan

All persons subject to this rule who operate incinerator(s) prior to April 5, 1991, shall:

- (1) Submit an Emissions Control Plan which includes all actions taken to meet or exceed the requirements of the emission limitations in paragraph (d)(1), (d)(2) and (d)(3). Such Plan shall be submitted to the Executive Officer's designee for approval by July 3, 1991 and shall contain at minimum:
 - (A) District permit number(s);
 - (B) Description of existing or proposed control equipment;
 - (C) Hours of operation;
 - (D) Quantity and type of material charged;
 - (E) Method of controlling particulate emissions during collection of waste material from the incinerator; and
 - (F) Copies of any previous source tests conducted.
- (2) Notify the Executive Officer's designee in the event of permanent incinerator operation shutdown by July 3, 1991. The shutdown date shall be no later than October 5, 1991.

(f) Recordkeeping

All persons subject to this rule shall maintain the following records for not less than two (2) years and make them available to the District upon request:

- (1) Continuous monitoring data for the incinerator, including but not limited to the following parameters:
 - (A) Primary and secondary combustion chamber temperatures;
 - (B) Carbon monoxide concentration of stack emissions; and
 - (C) Opacity of stack emissions or other indicator of particulate matter as approved by the District.
- (2) Records of incinerator operation, including, but not limited to, the following:
 - (A) Hourly weight charging rates to the incinerator, using equipment for determining and recording the weight of waste charged; and
 - (B) Records of all maintenance and repair activities, including records of any malfunction or failure of the incinerator or control equipment.
- (3) Continuous monitoring data for the following air pollution control equipment:
 - (A) Spray dryer monitoring equipment shall record, at a minimum, gas inlet temperature and gas outlet temperature.
 - (B) Wet scrubber monitoring equipment shall record, at a minimum, gas inlet temperature, scrubber liquid flow rate, scrubber liquid pH, and daily differential pressure drops of the flue gas across the equipment.
 - (C) Baghouse monitoring equipment shall record, at a minimum, gas inlet temperature and differential pressure drops of the flue gas across the equipment.
- (4) Air pollution control equipment other than that described in paragraph (f)(3)(A), (f)(3)(B), and (f)(3)(C) shall maintain records as required by the District.
- (5) Calibration data for all monitoring equipment.

(g) Source Tests

- (1) For purposes of demonstrating compliance with emission limitations specified in paragraph (d)(1)(A) or (d)(1)(B), all persons subject to this rule shall conduct at least two source tests for dioxin stack emissions using ARB Test Method 428 for high resolution mass spectrometry, as specified in Title 17, California Code of Regulations, Section 94139, within six months to 15 months after obtaining a Permit to Construct.
- (2) Source tests shall be conducted at least three months apart and shall be conducted until at least two consecutive tests demonstrate compliance, at which time the frequency of future source tests is at the discretion of the District.
- (3) For purposes of determining compliance with emission limitations specified in paragraph (d)(1)(A) of this rule, emissions shall be sampled simultaneously from the flue at a location where all the combustion is complete, but prior to the control equipment, and from the stack during source testing.
- (4) For purposes of determining compliance with emission limitations specified in paragraph (d)(1)(B) of this rule, the source testing shall be conducted at the stack.
- (5) Information regarding the composition of the waste charge during the source test, including estimated percent moisture content, infectious waste content, pathological waste content, plastics content, and paper content; and feed rate of the waste charged during the source test shall be provided with the test results.
- (6) Waste charged during the source test shall be representative of typical waste routinely incinerated at the facility.
- (7) Source testing shall be conducted at the maximum waste firing capacity as specified by individual manufacturer specifications (plus or minus 10 percent) or the maximum quantity allowed as provided by the Permit to Construct, whichever is less.
- (8) Source tests shall be submitted to the Executive Officer's designee and the Air Resources Board.

(h) Training Requirements

- (1) No person shall operate or maintain a medical waste incinerator unless such person obtains a certificate of training in medical waste incineration issued by the American Society of Mechanical Engineers within nine months of the commencement of the training program.
- (2) Copy(ies) of the training certificate(s) for the operator(s) and maintenance engineer(s) shall be submitted to the Executive Officer's designee.

- (3) Original training certificate(s) shall be maintained at the facility with the Permit to Operate.

(i) **Report of Emergency**

Any violation, malfunction, or upset of the medical waste incinerator, the air pollution control equipment, or the continuous data recording system shall be reported to the Executive Officer's designee within one hour of occurrence. Such report shall identify the time of occurrence, the equipment involved, and, to the extent known, the causes of the breakdown.

(j) **Exemptions**

The provisions of this rule shall not apply to:

- (1) Incinerators used exclusively for human or animal cremation; or
- (2) Persons which do not generate, process, treat, or dispose of biohazardous waste, as defined in the Health and Safety Code, Section 25020.5.

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